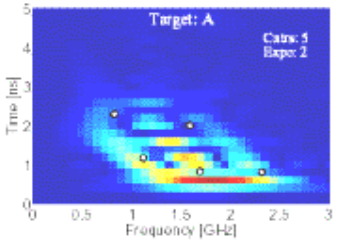
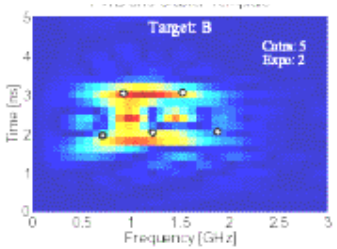
Impulse or Ultra-wideband Radar Research

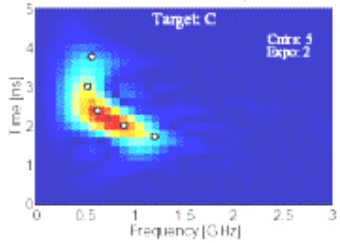
Dummy Mine



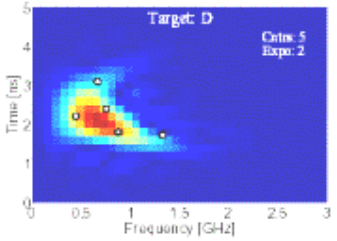
Nylon Cylinder



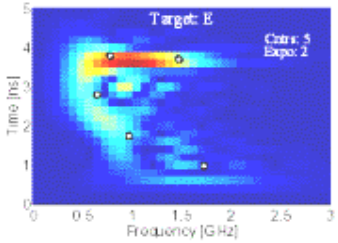
Metal Sphere



Metal Cylinder



Round Stone



Surface plots of the Pseudo- Wigner Diagrams (time-frequency plots) extracted from Ground Penetrating Radar

Objective

To explore target scattering of electromagnetic radiation in the resonant frequency range

Approach

Computational approaches for implementing joint time-frequency analysis of ultra-wideband radar pulses will be examined.

Payoff

- Optimal discrimination with existing waveforms
- Basis for tailoring waveforms

Principal Investigator

Army Research Lab in collaboration with FOI Sweden

Progress

- Joint time frequency domain provides more robust classification than time or frequency alone.
- The adaptive time-frequency distribution of Baraniuk and Jones (BJOKD), seems to be more robust than the Pseudo